May 9, 1939. H. B. GORMAN 2,157,982

MANUFACTURE OF FOOTWEAR

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Fig. 1

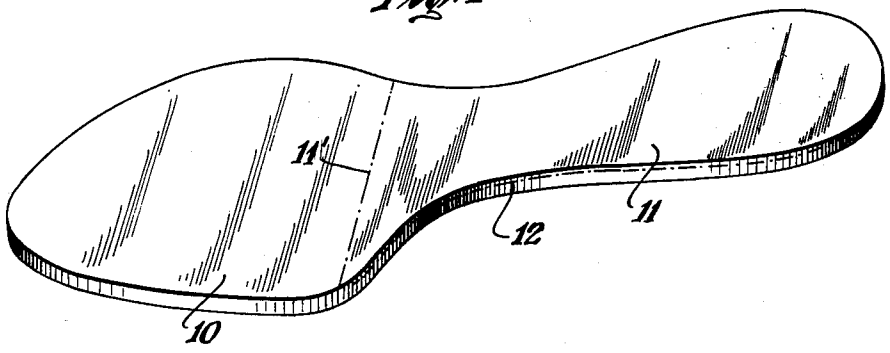


Fig. 3

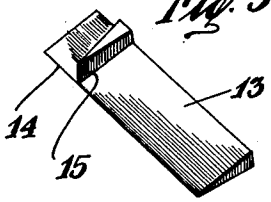


Fig. 2

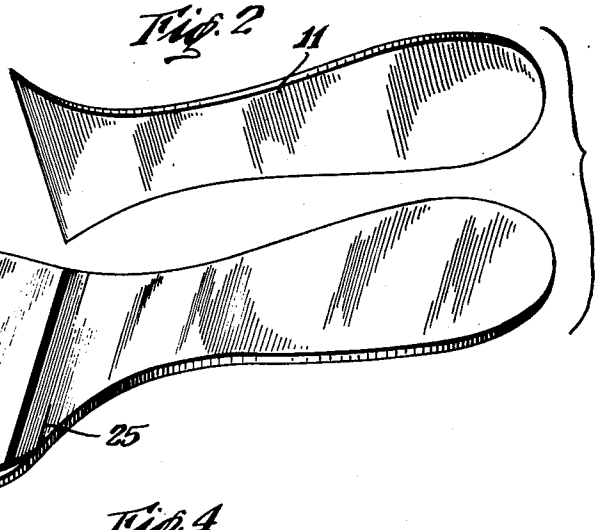


Fig. 4

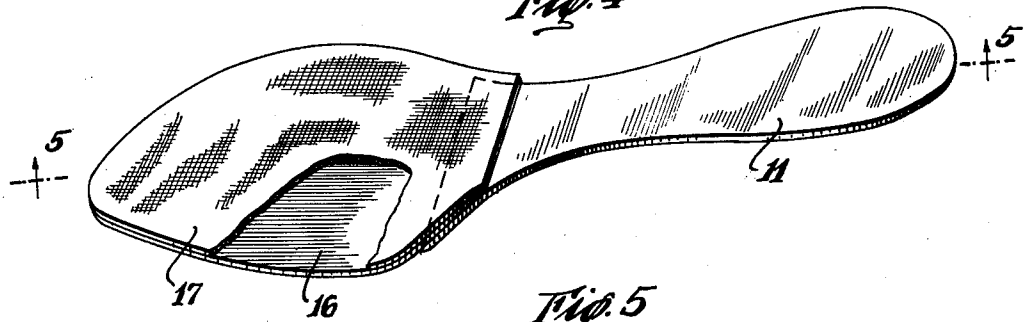
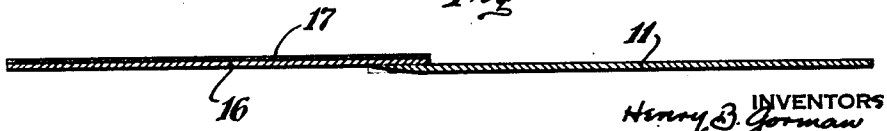


Fig. 5



Henry B. Gorman INVENTORS

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MANUFACTURE OF FOOTWEAR

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Fig. 6

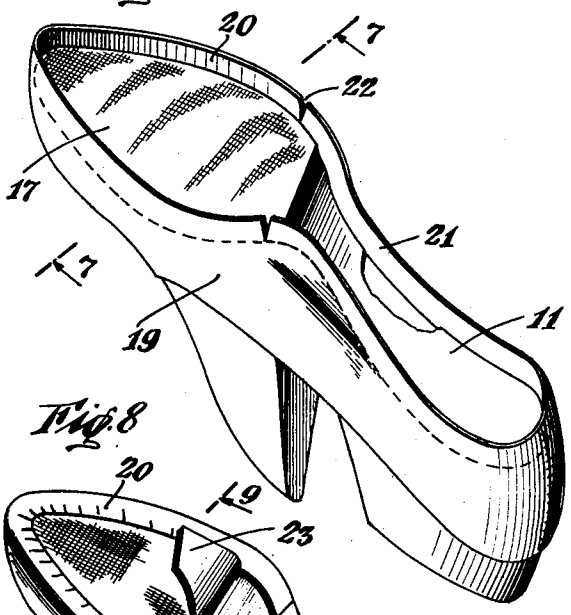


Fig. 7

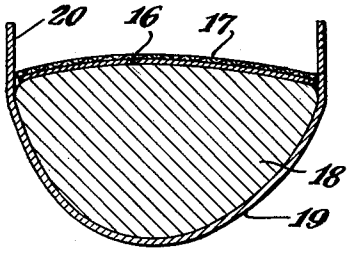


Fig. 8

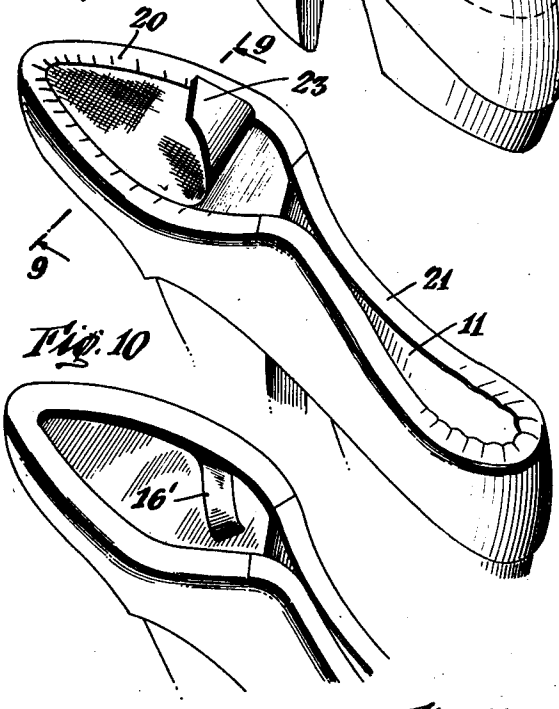


Fig. 9

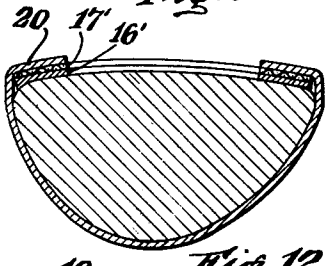


Fig. 10

Fig. 12

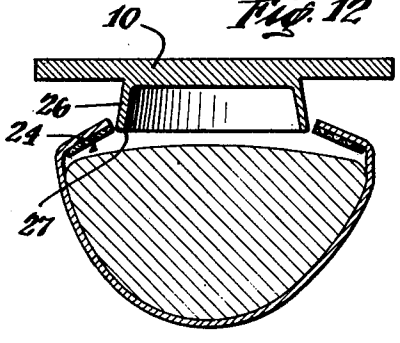


Fig. 11

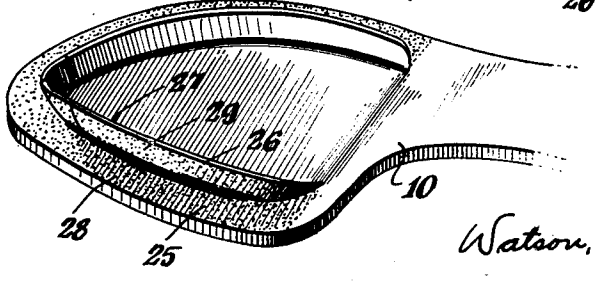
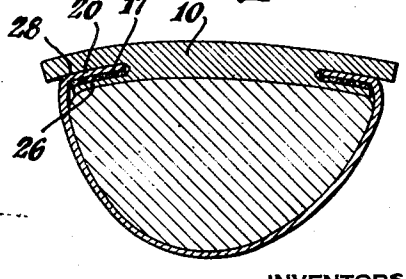


Fig. 13



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UNITED STATES PATENT OFFICE

2,157,982

MANUFACTURE OF FOOTWEAR

Henry B. Gorman, Lynchburg, Va., assignor to Compo Shoe Machinery Corporation, New York, N. Y., a corporation of Delaware

Application August 31, 1935, Serial No. 38,684

10 Claims. (Cl. 12—142)

This invention relates to the manufacture of shoes. A general object of the invention is to provide a shoe, and a method of making the same, having improved characteristics particularly as to flexibility at the forepart.

More particularly, objects of the invention are to provide a shoe and a method of making the same involving a flexible single sole construction at the central forepart portion thereof.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others, and the article possessing the features, properties, and the relation of elements, which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a rounded blank of sole leather used in following the principles of the present invention;

Fig. 2 is a perspective exploded view of the blank shown in Fig. 1 with a shank piece removed therefrom;

Fig. 3 is a perspective view of a knife used in preparing the outsole;

Fig. 4 is a perspective view of a composite insole embodying features of this invention;

Fig. 5 is a longitudinal vertical sectional view taken substantially along line 5—5 of Fig. 4;

Fig. 6 is a perspective view of a lasted shoe showing one stage in the lasting thereof;

Fig. 7 is a transverse vertical sectional view corresponding to line 7—7 of Fig. 6;

Fig. 8 is a perspective view showing further steps in the lasting operation;

Fig. 9 is a transverse vertical sectional view corresponding substantially to line 9—9 of Fig. 8 after completion of the operations illustrated in that figure;

Fig. 10 is a fragmentary perspective view showing a further step in the manufacture of the shoe;

Fig. 11 is a fragmentary perspective view of the forepart of the outsole blank shown in Fig. 2 with further operations indicated thereon;

Fig. 12 is a transverse vertical sectional view across the forepart of the shoe as treated in Fig. 10, and showing the application of a sole member thereto; and

Fig. 13 is a transverse vertical sectional view taken across the forepart of a completed shoe.

Referring more particularly to the drawings, there is shown a rounded blank of sole leather 10 having sufficient thickness to allow for the removal of a shank piece 11 therefrom in order to produce the composite inner sole about to be described. If desired, the shank piece 11 may be split from the sole blank 10 along the dotted line designated 12 in a single splitting operation which stops at the ball line 11' as illustrated, by use of a known or convenient leather splitting machine. A suitable template, not shown, may conveniently be employed to compel emergence of the splitting cut along the ball line, as is well understood in the art.

The above described splitting operations leave an outsole blank 10 having heel and shank portions which are relatively thinner than the forepart portion. This thickened forepart portion is next split and trimmed by means of a knife 13 having a horizontal cutting edge 14 and a vertical cutting edge 15 as shown in Fig. 3. This knife may be mounted on any suitable randing or channeling machine and the outsole 10 fed therepast so as to enable the blade 14 to make a horizontal cut 25 inwardly from the edge of the thickened portion of the outsole blank at the same level as the upper surface of the thinned shank and heel portions thereof, thus forming an integral lip 26 which may be bent upwardly away from the body of the outsole as shown in Fig. 11. At the same time the vertical cutting blade 15 trims the outer edge 27 of such lip about ⅛ of an inch inwardly from the outer marginal edge of the lower portion of the outsole.

As shown in Fig. 4, the shank piece 11, which is preferably the same shank piece which has been split from blank 10, has cemented or pasted to its forward edge a forepart portion 16 which is preferably made of cardboard having a thickness about equivalent to the combined thicknesses of the plied upper materials in the lasting allowance at the forepart of a shoe. The forepart portion 16 is backed, for strengthening purposes, by a suitable strong fabric backing 17.

The insole thus formed is located on a last, and an assembled upper is also located on the last in position to be drawn over and lasted to the composite insole, as is indicated in Fig. 6. The forepart lasting allowance portion 20 of such upper is preferably separated from the heel and shank lasting allowance portions 21 by splits such

as 22. This enables the lasting allowance 21 to be overlasted in any suitable or conventional manner, preferably by cement lasting in the manner described in Patent No. 1,988,436 to William H. Bresnahan. If desired, however, stitch or other lasting at this portion of the shoe is contemplated.

The foregoing lasting allowance at 20 is pulled over and lasted to the composite forepart portion of the insole, being cemented to the outer face of the fabric reinforcing ply 17.

After the shoe is thus lasted all around, the central forepart portion of the composite insole is cut out by means of a knife or other suitable tool substantially along the margin defined by the inner edges of the inturned lasting allowance. Any excess lasting allowance is trimmed away during this cutting operation. This incision terminates rearwardly at the ball portion of the shoe just forwardly of the shank piece 11, and the entire severed central forepart portion of the insole may be lifted and removed as indicated at 23 in Fig. 8. This leaves a lasted upper having a shank piece 11 at the heel and shank portions thereof and a forepart insole rand comprising the marginal portions 16' and 17' of the cardboard ply 16 and the fabric ply 17, respectively, as shown in Fig. 9.

One end of the cardboard forepart rand portion 16' is next loosened, as shown in Fig. 10, and this entire cardboard rand or loop is pulled out from between the last and the fabric rand portion 17' leaving a space 24 (Fig. 12) between these parts. This space is designed to accommodate the integral attaching lip provided on a mating outsole.

Referring now to Figs. 2 and 11, the trimmed lip 26 is lifted up away from the body portion of the sole and the opposed surfaces 28 and 29 of the split 25 are coated with cement, preferably pyroxylin cement, which is usually permitted to dry and is subsequently activated through the application of a solvent at the time the outsole is to be attached to the upper. When the cement is in its activated state, the lip 26 is sufficiently limp and pliable to be manipulated into the space or opening 24 in the manner indicated in Fig. 12. The outsole 10 also is preferably shanked out or scarfed at its shank portion in the conventional manner, and it is provided with an activated coating of cement at the shank portion, and also at the heel if cement attachment at the heel is desired. The outsole and the lasted upper to which it is fitted are then placed in a conventional sole press and held together under sole affixing pressures, such pressure forcing the lip 26 snugly into the position indicated in Fig. 13 and serving to affix such lip to the insole rand 17' while the outsole proper is cemented to the upper 20 at its cemented portion 28.

By virtue of this construction there is provided a shoe having a flexible single sole at its forepart which is subject to economical manufacture and easy assembly.

It will be seen that there has been provided a shoe and a method of making the same, together with a novel and useful last adapted to facilitate the construction of such shoe, all of which are well suited to fulfill their intended purposes.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a method of making a shoe, the steps which comprise lasting an upper to an insole having a plied forepart, removing one of said plies after lasting, providing an outsole with an integral attaching lip around its forepart, locating said lip in the space formed by removal of said ply, and fastening said outsole to the lasted upper.

2. In a method of making a shoe, the steps which comprise lasting an upper to an insole, cutting away the central forepart portion of said insole after lasting, providing an outsole with an integral attaching lip around its forepart, attaching said outsole to the lasting allowance of said upper and attaching said lip to the retained marginal portion of said insole.

3. In a method of making a shoe, the steps which comprise lasting an upper to an insole having a plied forepart, cutting away the central forepart portion of said insole, removing the remaining marginal portion of one of said insole plies, providing an outsole with an integral attaching lip around its forepart, locating said lip in the space formed by removal of said marginal ply portion, and fastening said outsole to the lasted upper.

4. In a method of making a shoe, the steps comprising attaching a fabric forepart piece and a backing piece to a shank piece to form an insole, locating said insole on a last with said backing piece thereagainst, lasting an upper to said insole, cutting away the central forepart portion of said insole, removing the remaining marginal portion of said backing piece, providing an outsole with an attaching lip, locating said lip in the space formed by removal of the marginal portion of the backing piece, and attaching the outsole to the lasted upper.

5. In a method of making a shoe, the steps comprising attaching a fabric forepart piece and a relatively stiff backing piece to a shank piece to form an insole, locating said insole on a last with said backing piece thereagainst, lasting an upper to said insole, removing the central forepart portion of said insole, removing the remaining marginal portion of said backing piece, providing an outsole with an attaching lip, cementing said lip to the inner face of the marginal portion of said fabric forepart piece, and cementing the marginal portion of the outsole to the outer face of the lasting allowance of said lasted upper.

6. In a method of making a shoe, the steps comprising forming the forepart of an insole from a fabric piece and a backing piece, locating said insole on a last with said backing piece thereagainst, cement lasting an upper to said insole, removing the central forepart portion of said insole and the marginal portion of said backing piece, providing an outsole with an integral attaching lip, cementing said lip to the inner face of the marginal portion of said fabric forepart, and cementing the marginal portion of the outsole to the outer face of the lasting allowance of said lasted upper.

7. In a method of making a shoe, the steps

comprising splitting a shank piece from a rounded sole blank, thus leaving an outsole having a relatively thick forepart portion, attaching a forepart piece and a forepart backing piece to said shank piece to form an insole, lasting an upper to said insole, removing the central forepart portion of said insole, removing the marginal portion of said backing piece, splitting the marginal portion of said thicker outsole portion to provide an integral attaching lip, cementing the margin of the forepart of said outsole to the outer face of the lasting allowance of said lasted upper, and cementing said lip to the inner face of the marginal portion of said forepart piece.

8. In a method of making a shoe, the steps comprising splitting a shank piece from a rounded sole blank thus leaving an outsole portion having a relatively thick forepart, splitting the margin of said forepart inwardly on a level with the upper surface of the shank portion of said outsole to form an integral lip, trimming the marginal edge of said lip, lasting an upper to an insole, removing the central forepart portion of said insole, attaching said lip to the retained marginal forepart portion of said insole, and attaching the marginal forepart portion of said outsole to the lasting allowance of said lasted upper.

9. A shoe having an insole comprising a shank piece and a centrally perforate fabric forepart piece, an upper lasted to said insole, an outsole having an integral lip around its forepart, and cement attaching said lip to said fabric forepart piece and attaching the outsole proper to the lasting allowance of said laster upper.

10. A shoe having an insole provided with a centrally perforate forepart, an upper lasted to said insole, an outsole having its forepart thicker than its shank and heel portions and having its marginal forepart portion split inwardly from its edge to provide an integral lip, said lip being located against the inner face of said insole adjacent its perforate portion, and the remainder of said outsole being located against the bottom of said lasted upper, and means fastening said outsole to said upper.

HENRY B. GORMAN.